The Zero Effect:
The Impact of Network-Centric Warfare on Operational Planning

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***Editorial Abstract:** The author describes a networked force's strength as its ability to collect, understand, disseminate, and act on information faster than the opponent; allowing real time plans adjustment, and creation of an agile force with which the slower enemy would have a hard time competing. The ultimate goal of network-centric warfare should be the ability to modify an already established operational plan in near real-time, not to construct one.*

Network-centric warfare (NCW), although a widely recognized term in the military, is not as yet a completely mature concept. Because it is still developing, it is defined slightly differently according to which article or book happens to be defining it. However, the main principles as described in *Network Centric Warfare: Developing and Leveraging Information Superiority* remain relatively constant, and seem to be widely accepted as part of the construct that is network-centric warfare. As a concept, NCW is characterized by shared battlespace awareness which creates a flattened command structure, allowing greater speed of command and self-synchronization of forces. In turn, the concept posits a merging of the planning and execution processes, creating an extremely high operational tempo. The outcome of which is the massing of effects from geographically dispersed forces that will overwhelm an adversary's ability to react.[1] "Combat units with accurate situational awareness would not need to stop and decide what to do next, but would continue to act towards the planned objective, while the enemy would effectively be overwhelmed by the speed of combat developments."[2]

Proponents of this paradigm envision a massively networked force linked with pervasive surveillance and reconnaissance assets—virtually eliminating the fog of war and allowing all echelons of command near real-time access to a common operating picture. Much of the evidence supporting this view comes from the study of commercial enterprises and their attempts to gain a competitive advantage in the global marketplace, resulting from huge Information Age technological advances. Notably, successful businesses have been able to leverage information by adapting their decision-making processes to respond to the market quicker than their competition. "The ability of an enterprise to share information across functional areas can enable resource allocation decisions to be made that maximize value from an overall enterprise perspective rather than a purely functional perspective."[3]

A smaller amount of supporting data comes from several case studies sponsored by the Pentagon's Office of Force Transformation—as part of the Network Centric Operations Conceptual Framework Initiative—and the two major military operations of the 21st century: Operations ENDURING FREEDOM and IRAQI FREEDOM. "The theoretical superiority of network-centric warfare in conventional combat was realized with the rapid US-led coalition victory over Saddam Hussein's forces in Iraq. Coalition forces brought to bear the full power of megabits and gigabytes against regular, irregular and so-called elite forces of the Iraq military." [4] Skeptics point to this as inadequate, and demand more real world testing and a slower approach to the transformation of the armed forces. "Probing questions about NCW were raised as early as 1998 and are echoed today by other voices who contend that substantial technology-driven changes in force structure, organization and operational art should be founded on more substantive evidence than can be gained from selectively sampling the scenario-unique sands of the Iraq War."[5]

Whether history judges it to be a true revolution in military affairs or just another leap forward in battlefield communications, networking of combat forces is here to stay. Along with this comes a large number of questions that remain to be answered concerning the ultimate form of a network-centric force. It is easy to get lost in all the different technological and organizational issues. This article focuses on only one particular aspect of the sweeping concept that is network-centric warfare: What, if anything, is NCW's impact on the operational planning process?

The Strengths

Proponents of NCW see merging of the planning and execution processes as one of the benefits. "In fact the entire loop concept for command and control is becoming outdated and needs to be replaced with a new concept of command and control—one that recognizes the need to treat different types of decisions differently and recognizes a merging of the now separate planning and execution processes (sometimes called dynamic planning)." [6] This aspect of NCW does not take into account the deliberate planning of operations prior to the execution of orders. As a planning model, it is reactionary in nature.

The strength of a networked force is its ability to collect, understand, disseminate, and act on information faster than the opponent; allowing commanders to adjust plans in real time, and create an agile force with which the slower enemy would have a hard time competing. Implicit in this is one critical assumption: the opposing forces will act in some way and friendly assets will observe this act. "Where traditional area reconnaissance missions are flown at regular intervals as required by planners, network-centric warfare will require round-the-clock surveillance."[7] Quicker reaction to the enemy, enabled by the networking of combat units and shared awareness, represents a decisive advantage… once the enemy is engaged. While this is obviously a goal worth pursuing, it is more applicable at the tactical level of war than the operational level. The ultimate goal of network-centric warfare should be the ability to modify an already established operational plan in near real-time, not to construct one. Parallel planning and execution is inherently reactive, and of great use at the tactical level, but should not be used as the operational planning framework.

Planners negotiate a maze of options. (Defense Link)

Deliberate Planning & Crisis Action Planning

The framework currently used to plan at the operational level can be found in the *Joint Doctrine for Campaign Planning* (Joint Publication 5.00-1). The document encompasses both the Deliberate Planning (DP) process and the Crisis Action Planning (CAP) process. Combatant Commanders use the DP process to plan for a broad range of potential contingencies, including both combat operations and Military Operations Other Than War (MOOTW). It can also include theater engagement planning designed to accomplish strategic objectives, and provide a base for tackling unforeseen contingencies.[8] The final product of the Deliberate Planning process is an operation plan (OPLAN), a functional plan (FUNCPLAN), or an operational plan in concept format (CONPLAN). Regardless of which form it takes, it is a formalized product conceived and written down well prior to anticipated execution.

The Commander's Estimate is an integral part of Deliberate Planning. It is "the document that clearly states the combatant commander's decision and summarizes the combatant commander's rationale for that decision." [9] The process that produces this is designed to allow the best possible decision with imperfect or missing information. It is intelligence centric rather than information centric. Although complete and accurate intelligence is always the goal, gaps in knowledge are expected. Thus, planners must have a formal process in place to address assumptions that must be made to allow planning to continue. [10] The planning team emphasizes the considered opinions of individuals with years of experience, over incomplete and sometimes conflicting data. Planners then consider several enemy courses of action, and develop friendly courses of action to counter them.

"Deliberate planning is designed as a cyclic process and provides the JPEC (Joint Planning and Execution Community) with an opportunity to develop and refine plans to be used in wartime."[11] While immediate access to the latest data is crucial in the dynamic planning paradigm, Deliberate Planning benefits from accurate intelligence. Access to unanalyzed, real-time data from a massively networked force presents no decisive advantage. Enemy courses of action developed by the staff are products that highlight expected future enemy actions. These must be built by merging data sifted from observations over a significant period of time, with new data. Faster information flow helps disseminate new data, but if planning is significantly time-constrained, the CAP process supersedes the Deliberate Planning process.

"CAP procedures are used by the JPEC to plan for and execute deployment and employment of US military forces in time sensitive situations."[12] Although the dynamic planning paradigm posited by NCW is in stark opposition to the Deliberate Planning process, one could argue that it is perfect for the CAP process. Faster and more widespread information sharing and virtual collaboration will allow better plans to be made in less time, resulting in quicker crisis response development. In fact, networking of planning staffs is a great benefit to the CAP process. Better collaboration "allows experts to integrate their perspectives to better interpret situations and problems, identify candidate actions, formulate evaluation criteria, and decide what to do."[13] However, in this context it is important to note the network is enabling superior planning, not the merging of planning and execution.

Not surprisingly, the CAP process identifies the final phase as execution. During this phase, planners address the need to modify the established plan. "During the execution phase, changes to the original plan may be necessary because of tactical and intelligence considerations…"[14] In other words, tactical initiative is still a valuable asset.

Limitations inherent in any large-scale military operation further divorce the operational planning process from execution. Mobilization of forces to the area of operations (AOR) will always be a consideration during the planning process. Especially in the

case of limited war, commanders must decide the appropriate type and number of forces to deploy. Rushing assets into an operation will lead to a haphazard build-up of combat power, and may present the enemy with opportunities he would not otherwise have. Additionally, forces on a high state of alert or forward deployed may not be the best for the job. This determination must be made during the planning phase (whether time critical or not), and become a part of the execute order.

Flattened C2

One of Napoleon I's maxims was "A plan of campaign should take into consideration everything the enemy can do, and prescribe the necessary measures to counteract him. Plans of campaign may be modified ad infinitum according to circumstances, the genius of the commander, the character of the troops, and the topography of the theater of war."[15] Two hundred years later, at the dawn of the 21st century, the problem has been restated to reflect the realities of our time. "Technology has compressed the space and time continuum, and political realities have collapsed the clear separations among the strategic, operational, and tactical levels by introducing more dynamic rules of engagement."[16]

Proponents of NCW see the advent of new technology and resulting operational concepts as significantly reducing the fog and friction of war.[17] This outlook portrays intermediate command echelons as unnecessary legacies of pre-Information Age forces, and a hindrance to streamlined execution of the commander's intent. "NCW gives us the opportunity to explore the vast middle ground between the Industrial Age top-down hierarchical command and control approach and the highly decentralized model of small units assigned pieces of the problem with only their organic capabilities." [18] Put bluntly, if a command echelon provides little or no value in return for the time delay incurred, then it is unnecessary.

While this premise applies mostly to the execution phase, what is its effect on planning? Skeptics note that "Carried to its extreme, NCW will lead to a complete 'tacticization' of strategy—where strategy is defined and dominated by purely tactical considerations. Operational art—that intermediate area of study and practice between strategy and tactics—is ignored totally. There is no discussion of the effect that the netting of forces will have on the conduct of major operations and maritime campaigns. The most serious omission is the critical role that leadership plays at all levels of war."[19] Intermediate level leadership also benefits during the planning process. An operational level plan can defer the specifics of execution to the intermediate level. There is a reason the saying "make it happen" is so widespread in the military: it captures the essence of the decentralized execution of a centralized plan.

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In the current system, existing lower level command structures are given a task and general guidelines to focus their actions. Within this framework, commanders are given a free hand to execute. Historically, this is the realm of great improvisation, where sparks of inspiration can change the outcome of a conflict. Conversely, it is also the area where a wonderfully conceived plan can be undone by poorly conceived execution. The difference is in the ability of the executing commander.

As currently defined, "A campaign plan translates strategic guidance into operational direction for subordinates. It provides broad concepts for operations and sustainment to achieve strategic or operational objectives."[20] Given this, removing an intermediate level of command could result in several different scenarios. First, the nature of operational plans could remain the same. Lower echelons would still require clear understanding of the commander's intent (which we strive for anyway), then have the ability to translate operational direction into tactical action. It is this translation into action that would suffer.

Intermediate command levels divide operational tasks assigned by the combatant commander into manageable tactical tasks for execution. These tasks are then passed on to lower level tactical units. Once execution begins, the NCW self-synchronization paradigm comes to the forefront. The intermediate command echelon, like all echelons, would monitor and provide input when necessary. Without this filter in place, tactical units would be required to sift through large amounts of information about what other units are doing, figure out where they fit in the plan, and then execute.

Of course, it is unlikely combatant commanders would issue these types of orders to lower level tactical units. More likely, operational planning would become much more specific in its tasking. The product used by the lower level tactical units would be the same, but the operational order would change to reflect the new flatter command structure. Implicitly, operational staffs would have to become much larger to produce the required granularity.

Whether by simply collocating the previous intermediate level commanders with the staff, or determining a new staff structure, the result would be the same: a larger staff with more responsibility to produce a much more detailed execution plan. In essence, this completely discards the benefits of NCW collaboration. "The collaborative C2 process improves the execution of the basic C2 process, both in terms of quality and speed, by providing the individual commander with access to the information and understandings of other commanders involved with the same mission." [21] Instead of flattening the command structure—in an effort to achieve speed of command and dynamic planning—the executing elements' exposure to the planning process will achieve a better, shared understanding

of the commander's intent, without sacrificing de-centralized execution. It will also preserve room for intermediate level commanders to modify the details of the plan to their specific situation. Dr. Milan Vego of the Naval War College observes "The need to increase the speed of command should never be the dominant factor in determining command structure. The number of intermediate command echelons should be limited to those needed to accomplish the assigned missions. Eliminating intermediate command echelons because technology allows a larger span of control cannot be explained in terms of sound command organization."[22]

Operational Tempo

According to *United States Doctrine for Joint Operations,* "The fundamental principle for employment of US joint forces is to take decisive action to ensure achievement of the objectives established by the NCA (National Command Authority) while concluding operations in the shortest time possible and on terms favorable to the United States."[23] Increased operational tempo, plus the ability to continually push toward your objective without allowing your enemy a pause, is one of NCW's greatest promises. "The move from a cyclic C2 process that performs planning and execution sequentially and is characterized by a period to a more continuous process that merges planning and execution, will result in our ability to generate much higher tempos."[24] Clearly, an accurate situational understanding widely shared by every participating entity will lead to faster, more economical use of force and a massing of effects that cannot be achieved without networking. However, this is a tactical level application of NCW during execution, not a by-product of merging operational planning with execution.

Networked forces (in theater because of the planning done by the combatant commander's staff prior to mobilization) enable monitoring of the execution phase across all echelons. "The execution of the plan can be monitored by all commanders with an understanding of the assumptions and information available when the course of action was developed and selected. This allows them to better adapt their future decisions to the dynamics of the operating environment."[25] As already stated, this is the ability to modify an operational plan in real-time to take advantage of the actual situation—a tactical principle used for years. NCW simply allows networked forces to do this more efficiently. During the operational planning process this should be viewed as a Critical Capability. The Critical Requirement for this capability is the network. Discussion about how or if this is a Critical Vulnerability is a subject for another article. However, planners must address this, and the current operational planning framework can accommodate the discussion. When deciding which forces to employ, operational level planners must take into account the tactical forces ability (or inability) to advantageously modify and simultaneously execute the plan.

Networked warriors contemplate a course of action. (US Navy)

Assuming every conflict will look a lot like Operations ENDURING FREEDOM and IRAQI FREEDOM is a mistake. There is no way to predict what future conflicts will be like. There is no data indicating overall decisive advantage in Information Age wars rests with the force that is better networked. It is possible (and probable) networked forces will be decisive, but we must debate this throughout the planning process.

MOOTW

It is a distinct possibility that in the foreseeable future a large portion of US operations will be Military Operations Other Than War (MOOTW). Notably, combating terrorism is defined as a type of MOOTW.[26] Even though a significant number will probably involve open conflict, this does not necessarily translate to force-on-force engagement. Until now, most of our NCW discussion has revolved around the asymmetric combat power developed by the netted force over traditional command and control, and how that should affect the planned force employment. We've assumed the operation will, on some level, involve a force-on-force engagement. These arguments do not easily extrapolate to encompass other types of MOOTW. Since operational planning involves both war and MOOTW, the impact of dynamic planning upon these operations is important.

Any planning must take into governmental and non-governmental agency participation into account. "Inherent in MOOTW is the need for the military to work with other agencies of the USG as well as other nations' governments."[27] While it is possible different US government agencies will be able to fully incorporate networked operations in their organizational structures, they do not all utilize the same planning processes. This is where the concept of operational dynamic planning most likely applies. In this

Interagency planners discuss their tasks. (USSOUTHCOM)

case merging of planning and execution is not in pursuit of higher operational tempo and a decisive military advantage. Instead, it is an attempt to integrate the many disparate entities involved into our side of the problem. Current joint doctrine recognizes "Each type of MOOTW can be unique. There is no single C2 option that works best for all such operations. JFCs and their subordinates should be flexible in modifying standard arrangements to meet the specific requirements of each situation and promote unity of effort."[28]

The integration of different agencies has been, and will continue to be, a particular challenge during MOOTW. Since most of the NCW discussion is geared toward combat operations, arguments concerning the desired merge between planning and execution do not readily apply here. Although dynamic network-enabled planning will be a definite advantage in MOOTW situations, it is not a transformation of the operational planning process. Rather, it is a process brought about by the need to integrate the heretofore separate agencies' planning processes.

Improved commonality in the planning processes among involved agencies will be a fallout of better networking. This will allow more and more collaboration and foresight in responding to events. Eventually, networked agencies should actually allow better pre-execution planning across a broader range of MOOTW contingencies, minimizing the need for dynamic planning. "The point is that NCW gives us an opportunity to increase speed of command when it is appropriate; it does not force us to do so when it is not."[29]

Recommendations

Networking of combat forces is inevitable. As the wireless transfer of large amounts of data becomes more and more prevalent, and the equipment needed to accomplish it becomes smaller and less expensive, the armed forces will naturally evolve to include this capability in their units. The challenge is the creation of organizational principles and methods of execution that will use these new capabilities to greatest effect. Here we must tread carefully, since "The fact that the theater commander in Operation Enduring Freedom directed employment of diverse and netted forces from his main headquarters in Tampa, Florida, thousands of miles away, is not an example of the sound application of operational art. The netting of forces was used to further centralize decision making at all levels. Commander, Central Command, not only observed but actually interfered in purely tactical decisions and actions. He did not delegate authority by establishing an intermediate level of command close to the combat area."[30]

At the operational level, network-centric warfare, is not a wholesale transformation of the way we plan campaigns. We do not have enough evidence concerning the future of military conflicts to support the merging of planning and execution. Nor is there overwhelming proof we should plan on using network-centric tactics in all possible conflicts. While recent operations have started revealing the promise of networked combat units, many questions remain on how to best employ them against different threats. As always, this should be driven by the best means to achieve the objective.

Our focus should be more about how to use new capabilities to improve and streamline our existing framework, and less about sweeping transformation of operational concepts. In fact, networked planning borders on a fait accompli. It is a given that any major planning endeavor will involve geographically dispersed participants. Our existing information infrastructure supports virtual collaboration, allowing a much more collaborative planning process. As these capabilities extend to smaller and smaller units, it will enable even greater resources to be brought to the planning table, and allow all units better situational understanding. However, it does not mean pervasive access along the entire chain of command should necessarily lead to planning while executing. Here is where many express their well founded concerns about the pitfalls of operational tempo, speed of command, and wide-open doorways to micromanagement.

Planning and execution of major military operations should be kept separate. The most discussed NCW issues (linking of shooters into virtual units, vulnerability of wireless communications to jamming, sensor to shooter capability, etc…) concern the execution of operational plans at the tactical level. Additionally, as interagency planning becomes more common, the need for dynamic planning to support inter-agency operations will diminish. The existing joint military planning process is robust enough

to assimilate the new capabilities a networked force brings to the table.

Conclusion

The *Joint Doctrine for Campaign Planning* puts it best, "Because theater-level campaign planning is mostly art, it is inextricably linked with operational art, most notably in the design of the operational concept for the campaign. This is primarily an intellectual exercise based on experience and judgment." [31]

The actual impact of new technology rarely matches the expected impact when it is first introduced. Even though dynamic planning has served some commercial entities well, we should proceed carefully in the military arena. Here even the staunchest NCW advocates agree "... network-centric concepts do not automatically translate into effective organizations. This is true whether or not one is trying to apply this concept in the commercial sector or to DOD."[32]

Operational planning concerns much more than space, time, force and how to best use them to your advantage. At its root, planning for armed conflict is about the estimation of your enemy's capabilities and his will to fight. It will always take learned individuals—who invest long hours and serious thought—to conceive the best possible course of action. "In short, absolute, so called mathematical, factors never find a firm basis in military calculations. From the very start there is an interplay of possibilities, probabilities, good luck and bad that weaves its way throughout the length and breadth of the tapestry. In the whole range of human activities, war most closely resembles a game of cards."[33]

Notes

[1] David S. Alberts, John L. Garstka, and Frederick P. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority* (Washington, DC: DOD C4ISR Cooperative Research Program, 1999).

[2] Doug Richardson, "Network-centric Warfare: Revolution of Passing Fad," *Armada International,* 28 (October/November 2004): 63.

[3] Alberts, Garstka, and Stein, 36.

[4] Robert K. Ackerman, "Iraq War Operations Validate Hotly Debated Theories," *Signal*, 57 (July 2003): 31.

[5] Alan D. Campen, "Look Closely At Network-Centric Warfare," *Signal*, 58 (January 2004): 43.

[6] Alberts, Garstka, and Stein, 74.

[7] Richardson, 62.

[8] US Joint Chiefs of Staff, *Joint Doctrine for Campaign Planning*, Joint Publication 5-00.1 (Washington, DC: 25 January 2002), III-3.

[9] US Joint Chiefs of Staff, *Joint Doctrine for Campaign Planning*, III-12.

[10] Ibid., III-7.

[11] Ibid., III-4.

[12] Ibid., IV-2.

[13] US Joint Chiefs of Staff, "Joint Command and Control Functional Concept," (Unpublished Draft v1.0, Washington, DC: 2005), 15.

[14] US Joint Chiefs of Staff, *Joint Doctrine for Campaign Planning*, IV-20.

[15] Conrad H. Lanza, ed., *Napoleon and Modern War*, Military Classics (Harrisburg: Military Service Publishing Company, 1949), 3.

[16] Alberts, Garstka, and Stein, 69.

[17] Ibid., 72.

[18] Ibid., 152.

[19] Milan Vego, "Net-centric is not Decisive," United States Naval Institute. *Proceedings*, 129 (January 2003): 53.

[20] US Joint Chiefs of Staff, Joint Doctrine for Campaign Planning, I-3.

[21] US Joint Chiefs of Staff, "Joint Command and Control Functional Concept," 15.

[22] Vego, 57.

[23] US Joint Chiefs of Staff, *Doctrine for Joint Operations,* Joint Publication 3-0 (Washington, DC: 10 September 2001), II-1.

[24] Alberts, Garstka, and Stein, 176.

[25] US Joint Chiefs of Staff, "Joint Command and Control Functional Concept," 15.

[26] US Joint Chiefs of Staff, *Doctrine for Joint Operations*, V-6.

[27] Ibid., V-4.

[28] Ibid., V-4.

[29] Alberts, Garstka, and Stein, 13.

[30] Vego, 57.

[31] US Joint Chiefs of Staff, *Joint Doctrine for Campaign Planning*, viii.

[32] Alberts, Garstka, and Stein, 11.

[33] Carl von Clausewitz, *On War*, Edited and translated by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976) 86.

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